Problem H. Music Game

Time limit:	2 seconds
Memory limit:	1024 megabytes

There are N switches numbered from 1 to N. Currently, all switches are off. You will press the switches one by one in any order you choose, but each switch is broken. Specifically, pressing switch i takes T_i seconds and behaves as follows:

- With probability $\frac{A_i}{B_i}$, it turns on.
- With probability $1 - \frac{A_i}{B_i}$, all N switches turn off.

Whether a switch turns on or not is independently determined each time it is pressed. Additionally, you cannot press another switch while pressing one.

Your goal is to turn all switches on as quickly as possible. When you press the switches appropriately, find the expected number of seconds required to turn all switches on, modulo 998244353.

Constraints

- $1 \leq N \leq 2 \times 10^5$
- $1 \leq T_i \leq 10^6$
- $1 \leq A_i \leq B_i \leq 10^6$

Input

The input is given in the following format from standard input:

N
$T_1\ A_1\ B_1$
$T_2\ A_2\ B_2$
$\vdots$
$T_N\ A_N\ B_N$

Output

It can be proven that the expected value is always a rational number. Moreover, under the constraints of this problem, it can also be proven that when this value is expressed as a reduced fraction $\frac{P}{Q}$, $Q \neq 0 \pmod{998244353}$. Therefore, there exists a unique integer R satisfying $R \times Q = P \pmod{998244353}$ and $0 \leq R < 998244353$. Output this R.

Examples

standard input	standard output
2 3 3 5 2 4 7	831870305
5 2 5 9 6 4 7 1 9 14 17 8 13 10 4 11	914017655
8 6 2 8 3 1 8 5 30 71 7 9 58 6 4 7 6 9 25 2 8 67 6 6 55	923892723

Note

For the first sample case:

As an example of a sequence of operations, the following exists (this sequence does not necessarily represent the optimal operations):

- Press switch 1 over 3 seconds. Switch 1 turns on.
- Press switch 2 over 2 seconds. All switches turn off.
- Press switch 2 over 2 seconds. Switch 2 turns on.
- Press switch 1 over 3 seconds. Switch 1 turns on.

In this sequence, the time taken is 10 seconds, and the probability that the operations proceed in this way is $\frac{3}{5} \times \frac{3}{7} \times \frac{4}{7} \times \frac{3}{5} = \frac{108}{1225}$.

Additionally, in this case, the expected number of seconds required to turn all switches on when pressing switches appropriately is $\frac{65}{6}$ seconds.